WHAT IS CLAIMED IS:

1. A magnetic random access memory module comprising:

a magnetic memory array;

a permeable metal layer extending over a first side of the magnetic memory array; and

an electrically insulating layer disposed between the magnetic memory array and the permeable metal layer.

2. The memory module of claim 1, wherein the permeable metal layer comprises a soft magnetic material.

3. The memory module of claim 2, wherein soft magnetic material is selected from the group consisting of iron, nickel, cobalt, alloys of iron, alloys of nickel and alloys of cobalt.

4. The memory module of claim 1, wherein the permeable metal layer has a permeability of greater than 10.

5. The memory module of claim 1, wherein the permeable metal layer has an anisotropy of less than 100 Oe.

6. The memory module of claim 1, wherein the permeable metal layer is isotropic.

7. The memory module of claim 1, wherein the magnetic memory array comprises:

a plurality of magnetic memory cells; and

a pair of write conductors operatively positioned adjacent each of the plurality of magnetic memory cells.

8. The memory module of claim 7, wherein each of the plurality of magnetic memory cells comprises:

a reference layer having a pinned magnetization;

a sense layer having an alterable magnetization; and

a dielectric layer separating the reference layer and the sense layer.

9. The memory module of claim 1, wherein the permeable metal layer has an area larger than an area of the magnetic memory array.

10. The memory module of claim 9, wherein the area of the permeable metal layer is at least twice the area of the magnetic memory array.

11. The memory module of claim 7, wherein the spacing between the permeable metal layer and the plurality of memory cells is 10 microns or less.

12. The memory module of claim 1, wherein the permeable metal layer has an annealing temperature lower than an annealing temperature of the magnetic memory array.

13. A method for shielding a magnetic random access memory module from stray magnetic fields, comprising:

attaching a layer of electrically insulating material adjacent a magnetic memory array in the memory module; and

attaching a layer of permeable metal over the insulating material.

14. The method of claim 13, wherein attaching a layer of permeable metal over the insulating material comprises sputtering the permeable metal in a rotating magnetic field.

15. The method of claim 13, wherein attaching a layer of permeable metal over the insulating material comprises:

sputtering the permeable metal; and

annealing the sputtered permeable metal in a rotating magnetic field.

16. The method of claim 15, wherein annealing the sputtered permeable metal in a rotating magnetic field comprises annealing the sputtered permeable metal while rotating the memory module in an annealing station in the presence of a stationary magnetic field.

17. The method of claim 15, wherein annealing the sputtered permeable metal in a rotating magnetic field comprises annealing the sputtered permeable metal while rotating a permanent magnet in an annealing station.

18. The method of claim 15, wherein annealing the sputtered permeable metal includes annealing the permeable metal at a temperature that is lower than an annealing temperature of a magnetic material in the memory module.

19. The method of claim 13, wherein attaching a layer of isotropic permeable metal comprises adhesively securing a sheet of high permeability metal to the insulating layer.

20. The method of claim 19, wherein the insulating layer is an adhesive.

21. A magnetic random access memory module comprising:

a plurality of magnetic memory cells;

a plurality of write conductors, each of the write conductors positioned adjacent an associated one of the plurality of magnetic memory cells;

an isotropic magnetically permeable metal layer extending continuously over at least one side of the magnetic memory cells and associated write conductors; and

an electrically insulating layer disposed between the permeable metal layer and the write conductors.

22. A method for shielding a magnetic random access memory module from stray magnetic fields, the method comprising:

depositing a layer of electrically insulating material over a surface of a magnetic memory array;

sputtering a layer of permeable metal layer over the layer of electrically insulating material such that the permeable metal layer extends continuously over the magnetic memory array;

annealing the sputtered layer of permeable metal to make the layer of permeable metal isotropic.